Kursus 1: Mathematical modelling and dynamical systems

Om kurset

Efter kursusstart vil Tine Nyegaard Pedersen i bygning 27.1 være kursussekretær

uddannelse	Den naturvidenskabelige bacheloruddannelse / Fagmodul i Matematik / Den Internationale Naturvidenskabelige Bacheloruddannelse
sted	Lokale IV (27.2-050)
Kursustype	fagmodulkursus
Undervisningssprog	English
Tilmelding	sign up: 1.-15. June 2013 via STADS self-service
Kursus starter	08-10-2013
Kursus slutter	29-11-2013
Undervisningstidspunkt	Course block C Tuesday 13-16.30 / Friday 8.30-10.30 - but Friday 11.10.13 8.30-12.45 There are no course in week 42 **The course will be given in English. However, at the moment the course description is available only in Danish. A course description in English will be uploaded as soon as possible** When the course begin the secretary will be tinenp
Undervisningssted	Lokale IV bygning 27.2
forudsætninger	•Calculus •Linear Algebra
formål	§1The purpose of the subject module in mathematics is: To give students a broad basic knowledge of the structures and methods of the subject. To give students qualifications to work with mathematical models within other subject areas. A further objective of the subject module in mathematics is to qualify students to enter a Master Programme in Mathematics or other related subjects.
Indhold	The course covers modelling in general, the mathematical concepts and theories related to (ordinary and partial) differential equations and parameter estimation processes. E.g. method of integrating factor, eigenvalue inspection, phase space analysis, population dynamics etc. Analytical as well as numerical tools (e.g. MATLAB) are used when suitable – students are not expected to be familiar with MATLAB, MAPLE or similar, when necessary code will be provided as "cookbook recipes". Minor student projects will be an integrated part of the course as well as project reports, which will be turned in for evaluation. In addition weekly in-class exercises are mandatory. Written work as well as oral presentations of exercises and other material by students should be expected.
Undervisningsform	Exposition, exhaustive survey and concise survey on the blackboard – both by the teacher and by the students – as well as discussions may be expected. Individual written exercises and mini-projects in teams are mandatory.
Eksamensform	Satisfactory fulfilment of the following is required to pass the course: • Three written assignments • One written group-report on a mathematical model • One oral presentation of a model of choice • Final oral examination. Pass/not pass.
Eksamenstidspunkt	Friday d. 10.1.2014 Re-examination 31.1.2014

reeksamenstidspunkt	Re-examination 31.1.2014
Materialer	An Introduction to Mathematical Biology by Linda S. Allen, Pearson 2007
	Nonliner Dynamics and Chaos with Applications in Physics, Biology, Chemistry and Engineering af Steven Strogatz.
Maksimum antal deltagere	30 students
Evaluering	A course evaluation will be held at the final session of the course.
kursusform	Exposition, exhaustive survey and concise survey on the blackboard – both by the teacher and by the students – as well as discussions may be expected. Individual written exercises and mini-projects in teams are mandatory.
mål	The aim of the course is to provide the students with a solid basis in the techniques of mathematical modelling, and to qualify the students for the graduate programme in mathematics. By the end of the course the students are expected to be able to work independently in constructing, analyzing and criticizing models based on simplified biological systems.
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Aktivitetsansvarlig	Kenneth Hagde Mandrup Nielsen (khmn@ruc.dk)
Kursussekretær	Charlotte Levin Pedersen (chle@ruc.dk)
Underviser	Kenneth Hagde Mandrup Nielsen (khmn@ruc.dk)

STADS stamdata   fagmodulskursus

belastning : 5 ECTS	aktivitetskode : U25136	
prøveform : mundtlig	bedømmelse : Bestået/ikke bestå	censur : Intern censur